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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/633,111

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Ji Zhang

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EXAMINER

HALLENBECK-HUBER, JEREMIAH CHARLES

ART UNIT

PAPER NUMBER

2621

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/633,111	Applicant(s) ZHANG ET AL.	
	Examiner JEREMIAH C. HUBER	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-15, 17, 18, 20, 21, 38-40, 42-44, 50, 51, 53-55, 57-65 and 67-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-15, 17, 18, 20, 21, 38-40, 42-44, 50, 51, 53-55, 57-65 and 67-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/14/09 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-18, 20, 21 and 38-40, 42-44, 50, 51, 53-55, 57, 58-65 and 67-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (hereafter APA) in view of Rate Control for Robust Video Transmission over Burst-Error Wireless Channels (hereafter Hsu) and in further view of Birru et al (7206352), Abiko et al (6807363), Zetts et al (7212726) and Ozkan et al (6055270).

In regard to claim 13 the APA discloses a method including:

generating, an output bitstream using a an encoder from a compressed input bitstream, running at a variable rate and at least one video frame from a packet payload

of a compressed bitstream, the encoder having a corresponding quantization scale factor (APA Fig. 2 and pars. 10-12 note compressed video streams such as MPEG2 are comprised of video frames transported in packet payloads, also note par. 6 input compressed streams run at variable bit rates).

APA further discloses an encoding set including quantization, variable length encoding and outputting. It is noted that APA discloses only a single encoder generating a single output bitstream. However Hsu discloses a rate control method in which an encoder is provided with a plurality of separately rated output bitstreams outputs each have an associated quantization scale factor wherein, the outputs branch between the operation of a Discrete Cosine Transform (DCT) and the plurality of quantizers (Hsu Fig. 3 and Section III particularly paragraph 2). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of duplicating the outputs of the APA into several branches so as to obtain plural outputs, and encoders each with an associated quantization factor in order to select the encoder rate allocation that produces the minimum distortion at the decoder for given rate constraints as taught by Hsu (Hsu Section III paragraph 1).

It is further noted that neither that the APA nor Hsu disclose incorporating the plurality of output bitstreams together. However, Birru discloses an ATSC digital television system in which standard and robust versions of a video signal are incorporated into a common stream such that selection between streams can be performed without transrating or decoding (Birru Fig. 2 and col. 4 lines 16-30 further note col. 4 lines 55-60 and col. 7 lines 48-52 note standard packets can be decoded

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and NS packets can be 'dumped' without transrating the stream or decoding the NS packets) . It is therefore considered obvious that one of ordinary skill in the art would recognize the advantage of utilizing the multiple outputs of APA in view of Hsu to generate a dual version ATSC television signal as taught by Birru in order to have a flexible trade off between high data rate video and robust video as suggested by Birru (Birru col. 2 lines 28-31).

It is further noted that neither APA, Hsu nor Birru disclose that the video segments are incorporated into a video block. However, the APA, Hsu and Birru all disclose compliance with MPEG and/or H.263 standards (Spec par. 10, Hsu section II A, Birru col. 1 lines 39-43 note ATSC standard signal is MPEG compliant). Under the MPEG standard video segments, or groups of pictures (GOP), are arranged 'end-to-end' in a sequence or 'video block', that includes a header as is shown by Abiko (Abiko Fig. 4 and col. 5 lines 47-65). It is therefore considered obvious that one of ordinary skill in the art would recognize the advantage of arranging the standard and robust video sequences of APA, Hsu and Birru in and 'end to end' fashion in a sequence or 'video block' in order to maintain MPEG compliance as illustrated by Abiko.

It is further noted that neither APA, Hsu, Birru nor Abiko disclose the inclusion of offset information with the 'video block'. However, Zetts discloses a method of inserting a file index into an MPEG bitstream that includes offset information identifying the beginning of each video segment (Zetts col. 4 line 64 to col. 5 line 22). It is therefore considered obvious that one of ordinary skill in the art would recognize the advantage of including an index as taught by Zetts in the invention of APA, Hsu, Birru and Abiko in

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order to gain the advantage of accurate random access as suggested by Zetts (Zetts col. 3 lines 29-33).

Finally, Hsu discloses a switch for selecting a an appropriate video segment to output in order to select the proper quantizer level (Hsu section III note paragraph 2). It is noted that neither the APA, Hsu, Birru, Abiko nor Zetts disclose selecting one video segment responsive to bit rate demands of concurrent output streams. However, at the time of the invention it was well known in the art to select a proper quantization level responsive to bit rate demands of other concurrent output streams from other compressed input streams as disclosed by Ozkan (Ozkan generally Figs. 1-3 and col. 4 line 28 to col. 7 line 22 particularly note col. 4 line 62 to col. 5 line 7 for allocating bit rates in consideration of bit rate demands of concurrent output streams from compressed input streams 1-K, and col. 7 lines 4-22 for using quantizer to control the bit rate of a bitstream). It is therefore considered obvious that one of ordinary skill in the art would incorporate selection of quantization levels as taught by Ozkan to determine the appropriate quantization level as in the APA, Hsu, Birru, Abiko and Zetts in order to gain the advantage of maintaining a constant quality for a plurality of output streams as suggested by Ozkan (Ozkan col. 3 lines 53-62).

In regard to claim 14 refer to the statements made in the rejection of claim 13 above. The APA further discloses DCT coefficients associated with a partial packet decode (Spec Fig. 2 215 and 225 and par. 11)

In regard to claim 15 refer to the statements made in the rejection of claim 13 above. As stated in the rejection of claim 13 the APA and Hsu both disclose compliance

with MPEG and/or H.263 standards which inherently include video segment units which comprise different content portions of an elementary stream such as groups of pictures, frames, slices, macroblocks, blocks. The APA inherently discloses segmenting the input bitstream into these units by removing system layer packet information and formatting the stream such that it can be operated on by a variable length decoder, inverse quantizer and inverse discrete cosine transformer which operate at a block level and/or macroblock level. The APA further discloses that the compressed bitstream is segmented into video segment processing units (Spec Fig. 2 210 and 215 and par. 11)

In regard to claims 17, 18 and 20 refer to the statements made in the rejection of claim 13 above. In regard to claim 18 the APA further discloses interleaving transport packets of an output video segment from with transport packets of other concurrent output streams from other compressed input bitstreams (APA Fig. 1 and pars 8 and 9)

In regard to claim 21 refer to the statements made in the rejection of claim 13 above. Hsu further discloses that each encoder has a quantization scale factor that quantizer parameters are selected from a finite set (Hsu Section III par. 3) therefore any adjustment to quantizing parameters between two encoders to reduce bit-rate will be a fixed percentage or amount as it will merely be a comparison of one fixed parameter to another fixed parameter.

In regard to claim 50 refer to the statements made in the rejection of claim 18 above. The APA further discloses storing at least one video frame in a frame buffer (Spec. Fig. 2 235 and par. 11).

In regard to claim 51 refer to the statements made in the rejection of claim 18 above. Both the APA and Ozkan further discloses outputting to a channel at a constant bit-rate (APA par. 6 also Ozkan Abstract).

In regard to claims 38-40, 42-44, 53-55 and 57 refer to the statements made in the rejection of claims 13-15, 17, 18, 20 and 21 above.

In regard to claims 58 and 67 refer to the statements made in the rejection of claims 13 and 38 above. Hsu further discloses selecting an output based on a control signal provided independently of further stream processing, or signal feedback,(Hsu Fig. 2 note, a prior channel model input into rate controller).

In regard to claims 63 and 72 refer to the statements made in the rejection of claims 13 and 38 above. Ozkan further discloses outputting to a buffer and modeling the current state of the buffer for underflow and overflow (Ozkan col. 11 line 65 to col. 12 line 67 particularly note col. 12 lines 30-49 note both the encoder and decoder buffers are modeled to prevent underflow or overflow).

In regard to claim 64 refer to the statements made in the rejection of claim 13 above. the APA further discloses selecting encoding parameters to fully utilize the channel capacity (APA par. 7 note bite rate of sources is adjusted to meet channel capacity constraints)

In regard to claim 65 refer to the statements made in the rejection of claim 13 above. Both the APA and Ozkan disclose outputting compatibly with a constant bit rate channel (APA par. 6, also Ozkan abstract).

Claims 59, 60, 68 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over the APA in view of Hsu, Birru, Abiko, Zetts and Ozkan as applied to claims 13 and 38 above, and further in view of Keesman et al (5606369).

In regard to claims 59, 60, 68 and 69, it is noted that neither the APA, Hsu, Birru, Abiko, Zetts nor Ozkan disclose details of selecting an output based on bit-rate data included in a header. However, Keesman discloses a joint bit-rate control in which bit-rate information inserted into a header is used to select an output for transmission (Keesman col. 3 lines 46-64). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of including output selection based on header bit-rate information as taught by Keesman in the invention of APA in view of Hsu, Birru, Abiko, Zetts and Ozkan in order to allow output selection at the multiplexer as taught by Keesman (Keesman col. 3 lines 60-64).

Claims 62 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over the APA in view of Hsu, Birru, Abiko, Zetts, Ozkan and Keesman as applied to claims 59 and 68 above, and further in view Nakase et al (5742361).

In regard to claims 62 and 71, it is noted that neither the APA, Hsu, Birru, Abiko, Zetts, Ozkan nor Keesman disclose time alignment information in a header. However, Nakase discloses a PES packet header that includes a time stamp (Nakase col. 2 lines 50-64). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of including a time stamp as taught by Nakase in the header of the invention of APA in view of Hsu, Birru, Abiko, Zetts, Ozkan

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and Keesman in order to align the displaying of video and audio data over a transport stream as taught by Nakase (Nakase col. 2 lines 50-55).

Claims 61 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over the APA in view of Hsu, Birru, Abiko, Zetts, Ozkan and Keesman as applied to claims 59 and 68 above, and further in view of Cisneros (5130984).

In regard to claims 61 and 70 it is noted that neither the APA, Hsu, Birru, Abiko, Zetts, Ozkan nor Keesman disclose look ahead information in a header. However, Cisneros discloses a packet switching architecture in which headers include look ahead information (Cisneros Fig. 7 and col. 24 line 53 to col. 25 line 38 note prepended routing information). It is therefore considered obvious that one of ordinary skill in the art at the time of the invention would recognize the advantage of including look ahead information as taught by Cisneros in the header of the invention of APA in view of Hsu, Birru, Abiko, Zetts, Ozkan and Keesman in order to relax time constraints for setting switch configurations as suggested by Cisneros (Cisneros col. 25 lines 29-38).

Response to Arguments

Applicant's arguments with respect to claims 13-15, 17, 18, 20, 21 and 38-40, 42-44, 50, 51, 53-55, 57-65 and 67-72 have been considered but are moot in view of the new ground(s) of rejection.

The examiner would recommend clarification of the contents of the video block with respect to the input and output segments. Specifically the examiner recommends specifying that the input bitstream comprises an input video segment, that the plurality of output bitstreams each comprise an output video segment whose content represents the input video segment [as in claim 38], and that the input and output video segments are incorporated into the 'video block' [as in claim 13].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Aguayo discloses a video distribution system in which video segments are arranged end-to-end.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMIAH C. HUBER whose telephone number is (571)272-5248. The examiner can normally be reached on Mon-Fri 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremiah C Huber
Examiner
Art Unit 2621

/Jeremiah C Huber/
Examiner, Art Unit 2621

/Dave Czekaj/
Primary Examiner, Art Unit 2621